

ATOMIC ENERGY *newsletter*®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
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Dear Sir:

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Testing operations now underway at Dresden nuclear power station of Commonwealth Edison Co., Chicago, have brought the plant to an 88,000 electrical kilowatt level. Designed for 180,000 kw output, one-half rated reactor power is maximum permitted by interim USAEC license covering this plant. General Electric Co.'s atomic power equipment department, San Jose, Calif., which is building Dresden for a fixed contract price of \$45 million, is carrying out the current testing operations which follow criticality achieved by the reactor Oct. 15, 1959, after the first 28 of its total 448 fuel assemblies were loaded. The reactor will be shut down on completion of the testing operations to check performance; with USAEC operating license, it is expected to be brought up to full capacity of 180,000 kw this Summer, some three years after construction began. (Other BUSINESS NEWS, p. 2 this LETTER.)

Adequate international safeguards for the maritime uses of atomic energy should be set up under world-wide diplomatic agreements, two University of Michigan legal researchers suggest. In their new book, "International Control of Nuclear Maritime Activities", Lee M. Hydeman and William H. Berman make a comprehensive legal analysis of international problems related to the safety of nuclear ship operation, transport of radioactive materials, and disposal of nuclear wastes at sea. Hydeman and Berman, co-directors of the University's law school atomic energy research project, recommend that the International Atomic Energy Agency, Vienna, develop international conventions in each of these three areas, to be followed by diplomatic agreements by the nations of the world. (The book, \$4.50 paperbound, \$6.00 in cloth, may be obtained from the University of Michigan Law School, Ann Arbor, Mich.) (Other BOOKS, PUBLICATIONS, p. 5 this LETTER.)

Better than 90% pure thorium hydrate is being produced from Sawyer Petroleum's thorite reserve on the Montana-Idaho border. Technamix Corp., with its nearly completed pilot plant there is making the pure hydrate for Sawyer. Officials of Sawyer are hopeful that the new and simple Technamix process can be scaled-up successfully so that U.S. ores can produce a competitive product. (Lindsay Chemical division of American Potash, largest U.S. thorium producer, extracts from monazite sands, most of which is imported.) (Other RAW MATERIAL NEWS p. 5 this LETTER.)

Nuclear irradiator will be designed and built by Radiation Applications, Inc., for Brooklyn Polytechnic Institute. Using 1000 curies of cobalt-60, it is to be used for low temperature solid-state research. Herbert Morawetz, professor of chemistry at Brooklyn Poly, will direct the work. (Other PRODUCT NEWS, p. 4 this LETTER.)

First series of experiments with the fast breeder reactor of the U.K. Atomic Energy Authority at Dounreay, Caithness, has been completed and the reactor has been shut down for about 3 months while changes are being made in its core. The reactor had achieved criticality Nov. 14, 1959. Since then physics and engineering research had been underway.

ATOMIC ENERGY BUSINESS NEWS...

LICENSE AGREEMENT SET UP: Long term license to manufacture General Dynamics Corp.'s major reactor systems for research and commercial power generation has been granted by GD to Gutehoffnungshutte Sterkrade A.G., engineering and manufacturing concern with headquarters at Oberhausen, Germany. The agreement gives the firm exclusive manufacturing and sales rights in Germany; its products now cover a wide range including heavy components for research and power reactors.

CONSTRUCTION PERMIT ISSUED: Provisional construction permit has been issued by the USAEC to Carolinas-Virginia Nuclear Power Associates, Inc., to build a \$43,000,000 nuclear power plant at Parr Shoals, N.C. Associates has been set up as a non-profit organization; its owners are Carolina Power & Light Co.; South Carolina Electric & Gas Co.; Virginia Electric & Power Co.; and Duke Power Co. Meanwhile permit is to be issued Westinghouse Electric Corp. to construct critical experiment facility in connection with the core design of the power reactor for the Carolinas-Virginia power plant.

NUCLEAR FIRM ACQUIRED: Petrolite Corp., St. Louis, Mo., has acquired all assets of Internuclear Co. Petrolite manufactures chemicals and equipment for the petroleum and allied industries; Internuclear produces nuclear equipment and furnishes research and consulting services in that field. Terms of the acquisition provide that Internuclear stockholders receive 1.4 shares of Petrolite stock for each share of Internuclear held. The Internuclear corporate identity, structure and business will be maintained as an independent entity according to L. C. Widdoes, president of Internuclear.

ATOMIC ENERGY FINANCIAL NEWS...

GOOD EARNINGS FROM URANIUM REPORTED BY INVESTMENT COMPANY: Hidden Splendor Mining Company, uranium mining subsidiary of Atlas Corp., had net income of \$1,434,922 for the three months ended Dec. 31, 1959 the company has reported to shareholders. Earnings were 33¢ a share on the outstanding common stock. Atlas Corp., closed-end investment company, owns 96.5% of Hidden Splendor's 4,095,741 common shares. Four uranium companies affiliated with Atlas had been merged into Hidden Splendor Oct. 19, 1959. Gross proceeds from sale of ore and ore concentrates, less royalties, amounted to \$5,287,638. (For accounting purposes books have been set up from Oct. 1, 1959 for the merged company.)

FINANCING PROPOSAL FIELD BY NUCLEAR POWER ORGANIZATION: Saxton Nuclear Experimental Corp., Saxton, Pa., subsidiary of General Public Utilities Corp., has joined with its parent companies in filing a financing proposal with the Securities and Exchange Commission. The SEC has issued an order giving interested persons until May 10, 1960 to request a hearing on the matter. Saxton is a non-profit stock corporation organized in May, 1959, to construct, operate and maintain a small experimental pressurized water type nuclear reactor. Its immediate parents are Jersey Central Power & Light Co.; Metropolitan Edison Co.; New Jersey Power & Light Co.; and Pennsylvania Electric Co.; all subsidiaries of GPU. Saxton proposes to issue and sell 20,000 common shares to the parent companies for \$20,000. The four companies will make cash contributions to Saxton in amounts not to exceed \$8,500,000, to finance research project which will be a cooperative effort involving Saxton; the four companies; Westinghouse Electric Corp.; Gilbert Associates, Inc., as architect-engineer; and others. Westinghouse will supply the reactor, nuclear fuel, and associated equipment for which Saxton will pay a fixed price of \$6,250,000.

METALS FIRM PLANS SALE OF ADDITIONAL SHARES: Brush Beryllium Co., Cleveland, has filed a registration statement with the Securities and Exchange Commission for 260,000 shares of its "split" common stock. The statement also covers 150,206 common shares to be sold by certain stockholders. Registration followed approval at the annual meeting of a two-for-one stock split (this LETTER, p. 3, April 12, 1960). The company said \$6 million of the proceeds from the stock sale will be used to finance the expansion of facilities at its Elmore plant for the production of beryllium metal. The balance will be used to further expand Beryllium fabricating facilities. Brush plans to increase production capacity of the Elmore plant to 24,000-lbs. of vacuum-cast beryllium billets a month, from the present 12,500-lbs., and to expand production capacity of beryllium hydroxide to 60,000-lbs. per month from 35,000-lbs.

ATOMIC ENERGY CONTRACT NEWS...

CONTRACTS LET: Maxon Construction Co., Dayton, Ohio, has received contract from the USAEC to construct the nuclear portion of a nuclear power plant to be built in Puerto Rico in cooperation with the Puerto Rico Water Resources Authority. The Authority, under a previous agreement with the Commission, is providing the site and conventional facilities, will operate the reactor on a reimbursable basis, and will purchase steam produced. Estimated total cost of the plant exclusive of site, switchgear and transmission facilities is approximately \$11 million. The reactor will be of the boiling water type using uranium dioxide as fuel. General Nuclear Engineering Corp., Dunedin, Fla., is designing the nuclear portion of the plant, and doing supporting research and development.

Westinghouse Electric Corp., Pittsburgh, has received a \$12,384,000 cost-plus-fixed-fee contract from the Navy's Bureau of Ships to design, develop and produce nuclear propulsion components for three submarines. Major items to be supplied under the contract include reactor vessels, control drive mechanisms, main coolant systems together with their steam generators and pumps and main loop piping.

ATOMIC ENERGY PATENT & TRADE-MARK DIGEST...

PATENTS ISSUED April 12, 1960 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:

(1) Recovery of thorium and rare earths from metallurgical sludges. James P. Flynn, inventor. No. 2,932,555 assigned to The Dow Chemical Co., Midland, Mich.

PATENTS ISSUED April 12, 1960 to GOVERNMENTAL ORGANIZATIONS: (1) Extraction of uranium. Donald E. Weiss, Everard A. Swinton, inventors. No. 2,932,552 assigned to Commonwealth Scientific and Industrial Research Organization, E. Melbourne, Victoria, Australia. (2) Production of uranium tetrafluoride. David A. Collins, John S. Nairn, inventors. No. 2,932,554 assigned to U. K. Atomic Energy Authority, London, England. (3) Magnetic prisms for separating ionized particles. Henri Bruck, inventor. No. 2,932,738 assigned to Commissariat a L'Energie Atomique, Paris, France.

PATENTS ISSUED April 19, 1960 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:

(1) Scintilloscope. Alex A. de Yakimac, inventor. No. 2,933,603 issued to inventor of record. (2) Method for testing oil filter elements using radioisotopes. James A. Norton, inventor. No. 2,933,604 assigned to General Motors Corp., Detroit, Mich. (3) Electromagnetic radiation device. George B. Foster, Walter H. Canter, inventors. No. 2,933,606 assigned to Industrial Nucleonics Corp., Columbus, Ohio. (4) Radiation displacement gauge with remote indication. Herbert Friedman, inventor. No. 2,933,607 assigned to J. J. Maguire Co., Washington, D. C. (5) Radiation measuring device. Jenó M. Barnothy, inventor. No. 2,933,608 issued to inventor of record. (6) Radio-activity well surveying. Russell G. Norelius, inventor. No. 2,933,609 assigned to Dresser Industries, Inc., Dallas, Texas. (7) Radiation pattern identifying apparatus. Thomas I. Ress, inventor. No. 2,933,610 assigned to International Business Machines Corp., New York. (8) Method and pack for making zirconium clad steel plate. Thomas T. Watson, inventor. No. 2,932,885 assigned to Lukens Steel Co., Coatesville, Pa.

PATENTS ISSUED April 19, 1960 to GOVERNMENTAL ORGANIZATIONS: (1) Fast neutron film dosimeter. Steven W. Ross, Eugene Tochilin, inventors. No. 2,933,605 assigned to Secretary of the Navy. (2) Concentration of plutonium using oxalate type carrier. David M. Ritter, Robert P.S. Black, inventors. No. 2,933,369 assigned to USAEC. (3) Dissolution method of removing bonding agents. Herbert H. Hyman, inventor. No. 2,933,421 assigned to USAEC. (4) Electronuclear reactor. Ernest O. Lawrence, Edwin M. McMillan, Luis W. Alvarez, inventors. No. 2,933,442 assigned to USAEC. (5) Neutron source. John S. Foster, Jr., inventor. No. 2,933,611 assigned to USAEC. (6) High voltage ion source. John S. Luce, inventor. No. 2,933,630 assigned to USAEC. (7) Method and alloy for bonding to zirconium. Franklin D. McCuaig, Robert D. Misch, inventors. No. 2,932,887 assigned to USAEC.

TRADE-MARKS TO BE ISSUED: Marks "Radocontrol" under SN-86,633 and "Radosecur" under SN-86,634 are to be issued C. H. Boehringer Sohn, Ingelheim am Rhein, Germany. The marks will be for a medicament for prevention and treatment of injury caused by radiation.

PATENT NEWS: Some 80 patented inventions, developed in the course of USAEC-sponsored research and the property of the U. S. Government, and which were issued during Oct., Nov., and Dec. 1959, have now been made available for private industrial use on a royalty-free basis (non-exclusive). Details of this group, as well as of the 2,180 such patented inventions previously made so available, may be obtained from Office of the General Counsel, USAEC., Wash. 25, D.C.

NEW PRODUCTS, PROCESSES, INSTRUMENTS...

NEW PRODUCTS: New radioactive biochemical, tritiated L-histidine, offered by this producer is said to be the first pure tritiated L-amino acid to be available commercially. With suggested uses in biochemical tracer studies, the absence of the D-form eliminates background interference in radioautographs. --Schwarz BioResearch, Inc., 230 Washington St., Mt. Vernon, N.Y.

Four low-cost nuclear science training kits are offered by this manufacturer as basic equipment, of value in university or high school courses. The core of each kit is either a 5-digit decade scaler, a miniature well scintillation system, a window gas flow counter, or combinations of these. Accessory items include timers, tube stands, GM detectors, absorbers, counting gas, etc. Each item of equipment is offered individually or as part of one of the four complete kits. --Atomic Accessories, Inc., Valley Stream, New York.

The Bantam Sampler is new air sampler weighing 9-pounds and sampling air at the rate of 2 cubic feet/minute. Intended primarily for survey work, motor windings can stand up to continuous operation for an 8-hour period. A built in fan and louvered metal case provide air circulation to keep the pump cool. The flowmeter is directly calibrated in liters per minute; the sampler is supplied with a 1-inch open filter holder. --Gelman Instrument Co., Chelsea, Michigan.

Linear count rate meter available from this manufacturer gives direct meter indication of the rate of random pulses generated in G-M and other detectors. An audio circuit for aural monitoring and connection for a strip chart are also provided. The meter is said to have an accuracy greater than 2% under 200,000 c.p.m., and greater than 5% for 200,000 c.p.m. --Radiation Counter Laboratories, Inc., Skokie, Ill.

Carbon-13 labeled compounds have been added to the line of isotopes offered by this firm. The compounds include methyl alcohol-C-13; methyl iodine-C-13; sodium acetate-1-C-13 and-2-C-13; and methyl-C-13 acetylene. They are said to have an isotopic purity around 60%. --Merck & Co., Ltd., Montreal, Quebec, Canada.

PRODUCT NEWS: Fuel gauge developed for the U.S. Navy by Atomics-International division of North American Aviation, Inc., is said to have high degree of accuracy and reliability. The transistorized instrument consists of a gamma radiation source, such as cobalt-60; scintillation detectors (containing a ratemeter); a pulse amplifier mounted on sides of the fuel tanks; power supply; and an indicator. Tested to 38,000-ft. altitudes, the gauge was said to have performed accurately during all flight altitudes and to be unaffected by cosmic radiation.

A revised Notice has been published by the USAEC covering base charges, special charges, specifications and packaging information for uranium hexafluoride. Publication was in the U.S. Federal Register (25 F.R. 2817) on April 2, 1960; copies of this Register may be obtained from Sup't. of Documents, Wash. 25, D.C.

The U.S. will deliver to the French Government "something less than 30 kg" of enriched uranium for experimental work in connection with a reactor for a nuclear powered submarine. The reactor is to be built at Aix-en-Provence. Principal result of talks recently held in France between John A. McCone, Chairman, USAEC, and French officials, the delivery will be the first installment on an agreement signed May 7, 1959 between the two countries for the supply of 440 kg over a 10-year period.

Now in use by the chemical processing department of General Electric Co. at its Hanford atomic products operation is a newly-designed chemical processing dissolver which can safely handle the new higher enriched fuels. The old style dissolvers used in the chemical processing of conventional irradiated fuel elements from Hanford reactors can only dissolve small amounts of the higher enriched fuel at one time. The new dissolvers are designed to hold the fuel in such a manner as to prevent a critical reaction.

MANUFACTURERS' LITERATURE: New 8-page brochure of Vitro Chemical Co. describes chemicals, metals and alloys of the rare earth group of elements, thorium, scandium and yttrium. The brochure may be obtained on request to the company at 342 Madison Ave., New York 17....Bulletin 60-A of Midwest Piping Co., 1450 So. 2nd St., St. Louis, Mo., describes welding and inspection for nuclear piping systems, plus pictures of installations. Descriptions and specifications for dosimeters, survey meters and probes are in bulletin 3115-9 of Victoreen Instrument Co., Cleveland, Ohio....Illustrated brochure of General Electric Co., Schenectady, N.Y., marks the fifth anniversary of GE's atomic power equipment department and describes the commercial applications of atomic energy during that five year period.

RAW MATERIALS... prospecting, mining, marketing...

CANADA: Production at Pronto Uranium Mines, Elliot Lake, a Rio Tinto mine, has stopped and most of the work force is being laid off. The mine is being closed to enable a "stretch-out" of the remainder of the uranium contracts held by Rio Tinto group of uranium producers in the area following approval of plans for amalgamation of these companies to form Rio Algom Mines.

Major new project at the Algom Quirke property of Rio Algom Mines will see large production shaft put down providing access to its reserves to a minimum depth of 1,700-ft. It is expected that sufficient ore will be opened for continued capacity operations at Algom Quirke until Nov., 1966. (The four Rio Tinto companies, Algom, Northspan, Milliken Lake, and Pronto are being merged to form Rio Algom. The two mines and mills of Algom are to be the only remaining plants involved in the merger to be operative after 1961.

Rix Athabasca Uranium Mines, faced with exhaustion of ore at its properties and an unfavorable outlook for uranium, plans to look for an alternate project, the company's annual report states. Production last year totaled 50,023 tons of ore shipped from which \$1,257,145 was grossed; the company had a net loss for the year of \$439,168.

NEW BOOKS & OTHER PUBLICATIONS...

Introduction to Nuclear Engineering. A series of monographs on the subject by British engineers.--Simmons-Boardman Publishing Corp., 30 Church St., New York, N.Y.

Nuclear Power Year Book, 1960. Edited by W. Caldwell Davidson. Review of British work in the nuclear field for 1959, discussion of instrumentation, metallurgy, etc., and with a buyers guide to the British nuclear market.--Rowse Muir Publications, Ltd., London, England. (£2 12s 6d)

Encyclopedic Dictionary of Electronics and Nuclear Engineering. Robert I. Sarbacher, former dean of graduate school, Georgia Institute of Technology.--Prentice-Hall, Inc., Englewood Cliffs, N.J.

Nuclear Data Sheets. Energy levels and radioactive decay data. -- Nuclear Data, National Academy of Sciences, National Research Council, Wash. 25, D.C.

Saline Water Conversion. Literature search by Frank G. Bennett, Atomics International division of North American Aviation. No. NAA-SR 3737. (50¢).....

Behavior of Fuels in Presence of Gamma Radiation. Investigations by M. E. Krasnow, O. P. Reynolds, O. S. Wolford, Cook Electric Co., for Wright Air Development Center. No. PB-161127. (\$3.00).....Effects of Nuclear Radiation on Solid Catalysts. Work by R. H. Bragg, Illinois Institute of Technology, for Wright Air Development Center. No. PB-161130. (\$2.00).....Effects of Nuclear Radiation on Magnetic and Ferroelectric Materials and Quartz. Literature search by S. I. Taimuty, Sanford Research Institute, for Air Force No. PB-161115. (75¢)--Office of Technical Services, Wash. 25, D.C.

MEETINGS, COURSES, CONFERENCES...

MEETINGS: First Annual Meeting of the Institute of Nuclear Materials Management is scheduled for June 20-21, 1960 in Columbus, Ohio. Full details may be obtained from H. L. Toy, program chairman, Battelle Memorial Institute, Columbus, Ohio.

Sixth Annual Meeting of American Nuclear Society will be held June 12-15, 1960 in Chicago. Preliminary program may be obtained from William M. Kiefer, Commonwealth Edison Co., Rm. 1310, 72 W. Adams St., Chicago, Ill.

Gas Cooled Reactor Project Information Meeting is scheduled for Oak Ridge, Tenn., July 14, 1960 under USAEC-sponsorship. Preliminary arrangements for attending should be made through R. A. Charpie, Oak Ridge National Laboratory, P.O. Box Y, Oak Ridge, Tenn.

SYMPOSIA: One day symposium on non-destructive testing of nuclear reactor materials is planned for May 20, 1960 at the USAEC's Germantown, Md., headquarters building. Objectives are to acquaint industry representatives with equipment and techniques. While advance registration is not required, those expecting to attend should write Division of Reactor Development, USAEC, Wash. 25, D.C.

Symposium on nuclear reactor containment buildings and pressure vessels will be held May 17-20 in Glasgow by Royal College of Science & Technology. British and American people working in the field will read some 25 papers.

Sincerely,

The Staff,
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April 26, 1960